

Title: HOW TO MAKE MORE CYCLING GOOD FOR ROAD SAFETY?

Presenting Author: Fred Wegman

Authors: F. Wegman 1

Affiliation

1. SWOV Institute for Road Safety Research/Delft University of Technology, The Netherlands,

Abstract:

If we compare bicycle use between different countries, there are enormous differences. These differences can be seen in the bicycle culture, bicycle use, the position of the cyclist in traffic, and the measures that have been taken to make cycling safer. There are countries, for example, where there is hardly any cycling, if any at all. This is often partly determined by a country's geography (hills and mountains) and its climate (high temperatures). There are countries where cycling is practiced as a kind of recreation. And, finally, there are countries in which cycling is a substantial part of the modal split. Although cycling activities also take place in rural areas, the majority of the bicycle kilometers are travelled in towns and cities, and over relatively short distances.

Many different reasons can be given to promote cycling. An important distinction that must be made is whether cycling is recreational, or whether it is a means of transport to travel from A to B.

Arguments that are heard, for example, are: cycling is healthy (e.g. helps to prevent obesity), cycling is good for the environment if it takes the place of motorized journeys, cycling is making a contribution to the prevention of congestion because cyclists take up less space than (parked) cars, cycling is cheaper than travel by passenger car or public transport. Compared to walking, cycling increases the distances that can be covered and in developing countries it can make a contribution to the economic development and be an aid in the fight against poverty. There is also a social dimension: certain social classes or women for instance, are not supposed to be seen on a bicycle.

One important objection can be made against promoting cycling: it is rather dangerous. As a direct consequence of the laws of (bio)mechanics and the vulnerability of the human body cyclists are vulnerable in traffic. Cyclists fall easily and can sustain serious injury. Brain damage is a serious and frequent injury. A cyclist can be injured in a crash with a motorized vehicle travelling a high speed and kinetic energy in a crash must be processed. In crashes, other than sometimes by a bicycle helmet, a cyclist is unprotected. Furthermore, a cyclist can lose control of the bicycle, have a fall, and be injured, especially if a cyclist is inexperienced or when obstacles play a role. Frequently, cyclists fail to follow the traffic rules and show unexpected behaviour in the eye of other road users. The consequences are that cyclists have a relatively high crash rate compared to that of pedestrians and particularly that of drivers. Children, and in some countries also the elderly, are noted for their extremely high crash rate. Here, there are clear indications that the under-registration of crashes involving cyclists is higher than for other modes of transport.

In essence there are two ways to increase cyclist safety, ways which fit into the Safe System Approach: one is to prevent the possibility of encounters between cyclists and motorized traffic by giving each group its own network. The second way, if these unequal transport modes can meet and a crash can indeed happen, is to reduce the speed of motorized traffic and introduce vehicle facilities which can reduce the risk of crashes and their severity. This way the exposure

Jerusalem, Israel, May 30-June 2, 2010

to risk, the crash rates, the injury rates should be minimized. Measures to accomplish this mainly involve the area of planning and design of traffic facilities. Safe vehicle design can also make a contribution. Of course there is also a role for education and enforcement.

In comparison with other road users, relatively little research has been done into cyclist safety. And, in addition, knowledge from research cannot easily be generalized. The latter is not so much the case for research into injury severity in relation with a crash; the laws of (bio)mechanics apply everywhere. But hardly any research has been done into the safety consequences of policy aimed at promoting bicycle use and it is difficult to use the results generally. This is as much the case for research aimed at determining the effectiveness and efficiency of interventions in the area of planning and design of traffic facilities. Not to mention the issue of to which extent the research results that are available will influence decisions to make traffic safer for cyclists. This contribution will present a structured survey of the available knowledge from research trying to give an answer to the question how to make more cycling good for safety.